

## **PRODUCT BRIEFING – VIRIDIAN RENEW™**

Issued 22/12/2008 v2

### **Product description**

Viridian **Renew™** is a durable, coated, neutral-coloured, self-cleaning laminated glass that requires less frequent cleaning and provides clearer vision during and after rainfall compared to ordinary float glass. It has good scratch resistance and durability and in most circumstances can be treated the same as ordinary laminated glass.

Under normal external conditions, exposed to natural UV light and rain, the unique coating destroys organic contaminants on the surface and increases the water sheeting action on the coated surface. This allows dirt to be washed easily from the surface and should greatly reduce the need for manual cleaning.

The coating has two important chemical properties which, when combined, make the glass 'self-cleaning'.

- **Photocatalytic - Breaking down organic dirt.**  
Ultra violet radiation – always abundant during daylight hours – causes it to react chemically with unwanted dirt and organic deposits, oxidising and loosening them from the surface of the glass. Viridian **Renew™** is an environmentally friendly material; there is no need for detergents or chemicals in cleaning, except where additional cleaning may be required in unusual circumstances. The coating performs as a catalyst which means that it facilitates the cleaning action yet is not consumed it. Consequently, it has a considerable service life.
- **Hydrophilic - Washing dirt away.**  
Water spreads evenly across the surface, producing a consistent cover over the glass, preventing the formation of separate droplets and ensuring that loose particles of dust and dirt can be washed naturally from all areas of the surface during normal rainy weather.

As a laminated product, Viridian **Renew™** can be single glazed or incorporated into an insulating glass unit if required, with the self-cleaning coating positioned on surface #1, (the outside of the building). In some applications, where required, the laminate may be toughened or heat strengthened.

However, it should be borne in mind that Viridian **Renew™** is a high value product, and therefore, it is important that its handling and processing are carried out in accordance with good practice. It must be glazed following Viridian's recommendations in order to obtain maximum benefit from its unique self-cleaning properties.

### **Delivery and storage**

The product is a coated glass and care should, therefore, be taken whilst offloading as well as during storage to avoid damaging the surface.

### **Handling**

Suction cups can be used on the coated surface but these must be clean, dry and in good condition and must not slide on the surface.

Whenever the glass is being manually handled, clean cotton or cloth gloves must be used. If the glass requires some form of identification it must be placed on the non-coated surface. The coated surface must not be marked with adhesive labels, wax crayons or paint marker pens, as subsequent removal may be difficult.

### **Coating detection**

Viridian **Renew**<sup>™</sup> can be identified using a hand-held detector on the coated surface, available from your Viridian representative.

Once cut to size and processed, Viridian **Renew**<sup>™</sup> can be identified by a hologram, which is placed on the non-coated side. When glazed, the coated surface must be to the outside and the hologram to the inside.

### **Washing / Cleaning**

Once Viridian **Renew**<sup>™</sup> is installed on site, care must be taken during any further construction work to avoid staining or damaging the coating. The coating must be protected from site contamination such as welding, rusty deposits, cement, plaster products or adhesives.

After building work is completed the glass should be cleaned as soon as possible to remove all traces of dust, abrasives, etc., which may have accumulated during construction.

Viridian **Renew**<sup>™</sup> is a hard, durable coating applied to the surface during float glass manufacture, however, as with any coated glass product, care should be taken while washing to prevent damage to the coating. It is essential to ensure that no metal, e.g. cleaning equipment, comes into contact with the coated surface.

The following recommendations are given for hand cleaning and spot cleaning of Viridian **Renew**<sup>™</sup>, where it may be required.

### **Hand cleaning**

Firstly, rinse the Viridian **Renew**<sup>™</sup> coated surface by spraying clean water from a spray bottle or garden hose. Start spraying the glass at the top of the window, back and forth, working downwards towards the bottom of the window. This will flush the dirt away from the clean areas from top to bottom to ensure the entire surface is wetted out. By doing this, the water flow should remove the bulk of the dirt from the glass surface.

Flood the coated surface with a mild, non-abrasive solution, i.e. one that does not contain solids in suspension. (A detergent and water solution is recommended. Abrasive cleaners must not be used.) Either spray on or apply the solution to the coated surface of the glass with a clean, lint-free, soft, saturated cloth, sponge or pad. Be generous with the amount of solution applied.

Rub the wetted surface gently and then rinse liberally with clean 'soft' water\*.

Wipe nearly dry with a dry, clean, lint-free cloth. Take care to ensure that no abrasive particles are trapped between the glass and the drying device otherwise damage to the coating may occur. To prevent streaking, stop wiping when the glass is almost dry and there is still a uniform thin film of moisture left on the glass surface. This film will quickly evaporate leaving a clean surface

The use of a squeegee on the coated surface is not recommended. If it is absolutely necessary to use a squeegee, particular care must be taken to prevent any metal parts from contacting the coating or dirt particles becoming trapped under the blade and dragged across the coating.

### **Spot cleaning**

Spot cleaning may be required to remove stubborn dirt or foreign materials that can adhere to the coated glass surface. Spot cleaning products can be used to remove marks or residue from grease, oil, tape adhesive, and crayons or other waxy materials as well as paint and rub marks from plastics. Commercially available ammonia or alcohol based window cleaners may be used for spot cleaning.

### **Recommended spot cleaning products**

- Acetone (solvent available from hardware store)
- Methylated spirits

Apply a small quantity of one of the cleaners listed above to a clean, lint-free cloth.

Lightly rub on areas of glass needing spot cleaning.

Wipe clean using a dry, clean, lint-free cloth followed by the routine detergent and water cleaning and rinsing procedure given above.

When the coating has been cleaned with solvents, it will need several days' exposure to sunlight to fully break down any solvent residue and become fully re-activated.

### **Mechanical, abrasive or acid cleaning**

Do not contact the coated surface with razor blades, steel wool or other metallic objects as they can permanently damage the coating.

Do not use any abrasive cleaners.

Do not use any solutions containing hydrofluoric acid or fluorine compounds on the coating, and do not allow any such solutions or harsh alkali solutions from adjacent brickwork cleansers etc., to come in contact with the coating.

\*If the water quality is very hard (i.e. greater than 180ppm combined content of calcium carbonate, CaCO<sub>3</sub> and magnesium carbonate, MgCO<sub>3</sub>) then rinsing water should be softened through a domestic water softener or through the addition of a couple of drops of detergent (dishwashing detergent suffices) to a litre of water.

### **Repeat orders, Colour deviation**

Production tolerances can cause slight colour deviations between different batches. These are minimal within a production run. In the case where glass for a project will have to be supplied over a longer period, please contact your Viridian representative to ensure that the colour deviations are minimised.

### **Surface treatment**

Lead, colour overlay and/or Georgian bars can generally be applied to the Viridian **Renew**<sup>TM</sup> surface. However, Viridian **Renew**<sup>TM</sup> will only retain its self-cleaning behaviour on the surface not covered by the lead, coloured overlay or Georgian bars. The recommendations in the Glazing advice above need to be followed concerning the use of silicones.

### **Glazing**

Where possible, a clean, dry gasket glazing system or an approved wet glazing compound must be used. The gasket should be of high quality that will minimise the leaching out of silicones from its surface.

Silicone sealants can exude oil or plasticisers containing silicones during curing, and long afterwards. These materials are very difficult to remove from the glass and coating. The presence of these materials on the Viridian **Renew**<sup>TM</sup> surface will smother the self-cleaning action, so careful consideration should be given before silicone sealant is used. There is a wet sealant available which will not leach these materials. This sealant is Soudaseal 4 All Paint. Further details can be found in the Viridian **Renew**<sup>TM</sup> Sealant and Gasket Advice topic. The use of silicone-containing lubricants during manufacture or installation of gaskets should be avoided. Nevertheless, the Viridian **Renew**<sup>TM</sup> coating can be expected to break down the organic components of these oils and lubricants over time but it will not break down the silicone components. When glazing into frames, do not use glazing tapes that contain oil (eg. silicone and/or paraffin wax). Under no circumstances should linseed oil putty be used with Viridian **Renew**<sup>TM</sup>.

It is the fabricator's responsibility to ensure that the glazing recommendations are adhered to for each installation.

Where the glass is adjacent to new lead flashings, white carbonate run-off from the lead can stain Viridian **Renew**<sup>TM</sup> as it would ordinary glass. This should be minimised by applying Patination oil. Other flashing materials should be checked for run-off and potential subsequent staining.

As with all glass, care should be taken to ensure that alkaline leach-out from concrete, etc. does not occur.

### **Sealant**

Silicone is the most popular wet sealant used in the glazing industry. However, the use of silicone sealants presents a problem when used with Viridian **Renew**<sup>TM</sup> self-cleaning glass because silicone sealants leach material onto the surface of the glass. For normal glass this will manifest a gradual build-up of dirt adjacent to the sealant, but for Viridian **Renew**<sup>TM</sup> this has undesirable consequences. This leached material coats the surface and smothers the cleaning action of Viridian **Renew**<sup>TM</sup>. This means that an area around the edge of the glass does not self-clean.

Considerable resources has been used to find sealants which are suitable to use with Viridian **Renew**<sup>™</sup>. The process has involved extensive testing to ensure that the sealant does not interfere with the cleaning action of Viridian **Renew**<sup>™</sup>. This process has identified several sealants, one of which is now available in Australia.

The sealant is “Soudaseal SMX<sup>®</sup> 505” and is available locally from:

APTC Sealants and Adhesives  
1a Roper Street  
Moorabbin  
VIC 3189

Phone 03 9532 0609  
Fax 03 9532 0171  
Email [sales@aptc-adhesives-sealants.com.au](mailto:sales@aptc-adhesives-sealants.com.au)

“Soudaseal SMX<sup>®</sup> 505” is not a silicone sealant but a MS Polymer sealant. Attached are technical data sheets which explain what it is and how to use it.

### **Gaskets**

Gaskets are slightly more difficult to quantify as it is not only the material that needs to be considered but also the manufacturing and installation processes. Gaskets are formed by extrusion and this process requires a lubricant. A lubricant is also used sometimes during installation of the gasket to the frame. If the manufacturing or installation process for the gasket uses a lubricant which contains silicone, then the gasket will not be compatible with Viridian **Renew**<sup>™</sup>.

EDPM or Vinyl are the most common materials used for gaskets and are materials that are compatible with Viridian **Renew**<sup>™</sup>. However, this compatibility will be compromised by the use of any lubricants which contain silicone.

### **Glazing tapes**

Compatible products are:

- Tremco Butyl Tape
- Tremco Polyshim Tape

### **Further information**

Please visit [viridianglass.com](http://viridianglass.com) or freecall 1800 810 403

For Viridian disclaimer and warranty details please visit our website [viridianglass.com](http://viridianglass.com)  
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## Technical Characteristics:

Base	SMX <sup>®</sup> - technology
Consistency	Paste
Curing System	Moisture Cure
Skin Formation (*) (20°C/65% R.V.)	Ca. 10 min.
Curing Rate (*) (20°C/65% R.V.)	2 mm/24h
Hardness (DIN 53505)	20 ± 5 Shore A
Specific Gravity (DIN53479)	1,45 g/mL
Elastic recovery (ISO 7389)	> 70 %
Maximum Deformation	20 %
Temperature Resistance (fully cured)	-40°C to +90°C
Elasticity Modulus 100 % (DIN 53504)	0,30 N/mm <sup>2</sup>
Tear Strength (DIN 53504)	0,89 N/mm <sup>2</sup>
Elongation at break (DIN 53504)	500 %

(\*) these values may vary depending on environmental factors such as temperature, moisture, and type of substrates

**Product:**

Soudal SMX<sup>®</sup> 505 is a high quality single component glazing sealant with high adhesive strength. It is based on SMX<sup>®</sup> - technology, chemically neutral and fully elastic and has been approved according to ISO 11600 G 20 LM.

**Characteristics:**

- High bond strength on nearly all surfaces
- Can be painted with most water based paints (see remarks)
- Excellent adhesion on glass, wood, metal and PVC
- Ecological advantages – free from Isocyanates, solvents, halogens and acids
- Flexible elastic rubber – movement accommodation up to 20%
- Straightforward application even in adverse conditions
- No bubble formation within sealant (in high temperature and humidity applications)
- Primerless adhesion on many substrates (consult our Technical Service for more details)
- Easy to tool and finish with soapy water
- Good extrudability even at low temperatures
- Colour stable and UV resistant
- Minimal health and safety considerations

**Applications:**

Glazing sealant between glass and all usual frame materials: timber, aluminium, steel, PVC. Specially developed for use on self-cleaning glass (Bioclean<sup>®</sup> and Activ Glass<sup>®</sup>)

**Packaging:**

Colour: white, black  
Packaging: cartridge 290mL

**Shelflife:**

12 months in unopened packaging in a cool and dry storage place at temperatures between +5°C and +25°C.

**Resistance to chemical agents:**

Good resistance to water, aliphatic solvents, mineral oils, grease, diluted inorganic acids and alkalis

Poor resistance to aromatic solvents, concentrated acids, chlorinated hydrocarbons

Remark: The directives contained in this documentation are the result of our experiments and of our experience and have been submitted in good faith. Because of the diversity of the materials and substrates and the great number of possible applications which are out of our control, we cannot accept any responsibility for the results obtained. In every case it is recommended to carry out preliminary experiments.

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2300 Turnhout, Belgium  
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**Substrates:**

Nature: clean, dry and free of dust and grease

Priming: Surface Activator may be used on non-porous surfaces. Surface Activator may improve adhesion on metal substrates like (coated) aluminium. A preliminary test on this substrate is recommended.

We recommend preliminary compatibility tests prior to application

For instructions on the installation and use of this product on self-cleaning glass please consult the installation instructions of the concerned glass manufacturers

**Application:**

Method: Manual- or pneumatic caulking gun

Application temperature: +5°C until +35°C

Cleaning: White Spirit or Surface Cleaner

Immediately after application and before curing

Tooling: can be tooled with soapy solution before skin formation

Repair with: Same material

**Health- and Safety Recommendation:**

Apply the usual industrial hygiene

See packaging for more information

**Remarks:**

- Soudal SMX<sup>®</sup> 505 can be painted with water based paints. However due to the large number of paints and varnishes available we strongly suggest a compatibility test before application
- Remove all traces of soap (tooling) because it will harm the adhesion of the paint onto the sealant
- The use of metal spatula or other hard tooling equipment on Self-cleaning glass is not recommended in order to prevent the damaging of the active layer of the glass
- We recommend the use of Soudaseal 215 LM for all perimeter joints (between wall and window profiles) in applications where Self-cleaning glass is used
- SMX 505 should never be used in applications where stagnant water can occur. We therefore always recommend a minimum pitch of the substrates of 10°

**Self Cleaning Glass:**

Soudal SMX<sup>®</sup> 505 allows for a primer-free application on self-cleaning-glass. (e.g. Activ Glass<sup>®</sup> by Pilkington and Bioclean<sup>®</sup> by Saint-Gobain Glass). All naturally and accelerated weathering tests performed up till now show an excellent compatibility and adhesion of the product on the self-cleaning-glass. Our growing experience with this type of glass will also allow for a more accurately predicted long-term functionality of the product onto this type of glass

**Norms:**

Soudal SMX 505 has been tested and approved according to:

- ISO 11600-G-20LM (IFT Prüfbericht 504 28498/2)
- ISO 11431 on SGG Bioclean<sup>®</sup> and Activ Glass<sup>®</sup> (IFT Prüfbericht 504 28498/3)

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